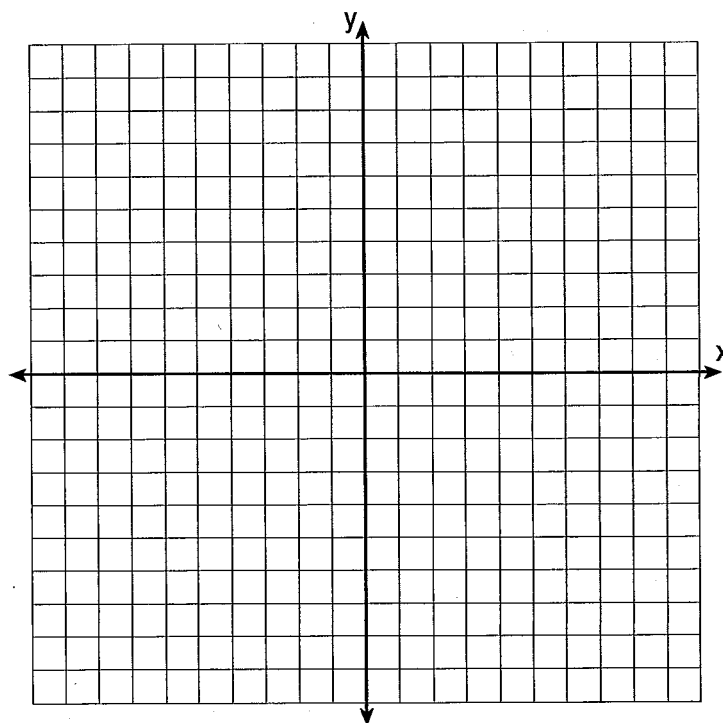Name: _____
4.1 Quiz Review - Linear Inequalities

1)   Graph and label the given inequality on a coordinate axes:

$-2y > x + 4$

2)   Which of the following *best* describes the graph of $y < mx + b$?
  A) a solid line through $y = mx + b$ with the half-plane below the line shaded
  B) a dashed line through $y = mx + b$ with the half-plane above the line shaded
  C) a dashed line through $y = mx + b$ with the half-plane below the line shaded
  D) a solid line through $y = mx + b$ with the half-plane above the line shaded

3)   Which of the following *best* describes the graph of $y > mx + b$?
  A) a dashed line through $y = mx + b$ with the half-plane below the line shaded
  B) a solid line through $y = mx + b$ with the half-plane below the line shaded
  C) a dashed line through $y = mx + b$ with the half-plane above the line shaded
  D) a solid line through $y = mx + b$ with the half-plane above the line shaded

4) What is the equation of the graphed region?
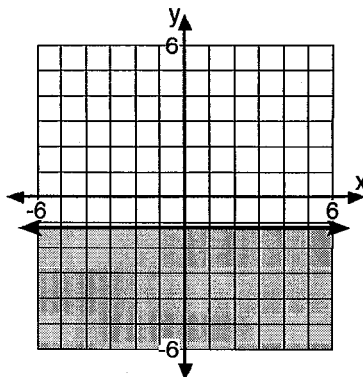
A) $y \le -5$

B) $y \le -\dfrac{5}{4}$

C) $x \le 5$

D) $x \le -\dfrac{5}{4}$

5) Which of the following inequalities is equivalent to $x + y > 3$?

A) $y > x - 3$

B) $y > -x + 3$

C) $y < x - 3$

D) $y < -x + 3$

6) Which of the following inequalities is equivalent to $2y + x > 2$?

A) $y < -\dfrac{1}{2}x + 1$

B) $y > -\dfrac{1}{2}x + 1$

C) $y < -\dfrac{1}{2}x - 1$

D) $y > \dfrac{1}{2}x + 1$

7) Which of the following inequalities is equivalent to $5x + y \le 3$?

A) $y \ge 5x + 3$

B) $y \le 5x + 3$

C) $y \le -5x + 3$

D) $y \ge -5x + 3$

8) Which of the following ordered pairs are solutions to the inequality $y \le 2x - 1$?

   I. $(-4,-7)$
   II. $(1,-1)$
   III. $(2,4)$
   IV. $(3,2)$

A) I and III, only

B) II and IV, only

C) I, II, and IV, only

D) I, II, and III, only

9) Which of the following ordered pairs are solutions to the inequality $2y + 3x \le 12$?

   I. $(-2,10)$
   II. $(2,1)$
   III. $(0,-4)$
   IV. $(4,-1)$

A) II, III, and IV, only

B) II and IV, only

C) I and II, only

D) I, II, and III, only

10) Which of the following ordered pairs are solutions to the inequality $3x - 2y \leq 6$?

    I. (-3,3)
    II. (0,-1)
    III. (2,4)
    IV. (3,0)

A) *I*, *II*, and *III*, only   C) *I* and *III*, only
B) *I* and *III*, only   D) *II* and *IV*, only

11) Transform $x - y < 4$ into an equivalent inequality whose left member is y.

12) Transform $x + y \leq 2$ into an equivalent inequality whose left member is y.

13) Transform $5 + 15x > -5y$ into an equivalent inequality whose left member is y.
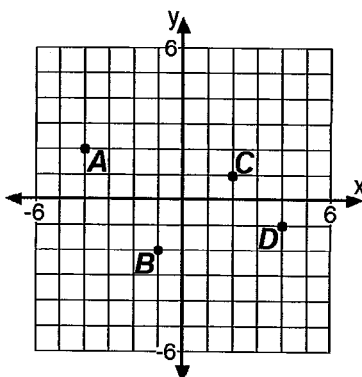
14) Does the point (1,4) belong to the graph of $y \leq 4$? [*Explain why or why not.*]

15) Does the point (4,1) belong to the graph of $x < 3$? [*Explain why or why not.*]

16) Does the point (1,2) belong to the graph of $x + y > 3$? [*Explain why or why not.*]

Questions 17 and 18 refer to the following:

Graph the given inequality and determine which points on the graph below are solutions to that inequality:

17) $y \geq -x + 1$

   A) $A, B, C,$ and D

   B) A and B, only

   C) A, only

   D) C and D, only

18) $y \leq \frac{1}{2}x - 2$
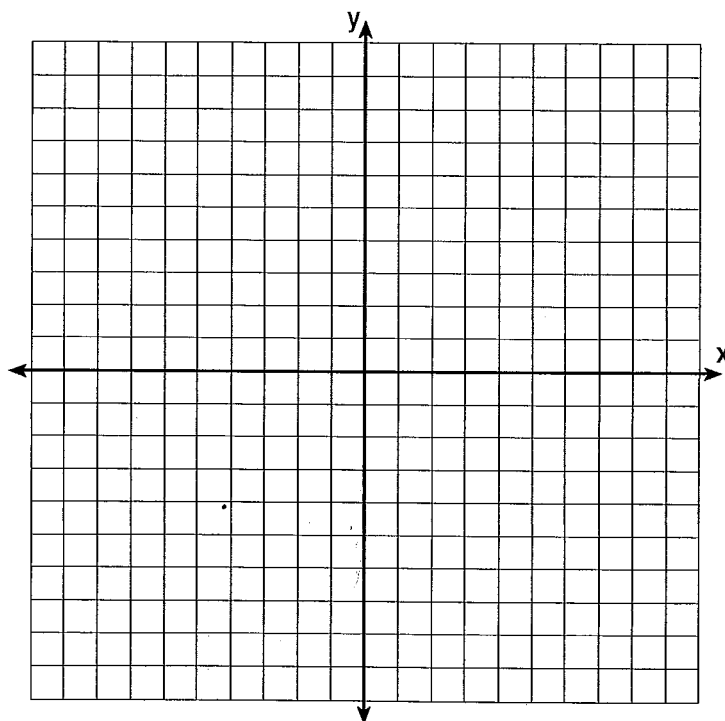
   A) A, only

   B) C and D

   C) D, only

   D) A and B

19) Graph and label the given inequality on a coordinate axes:

   $10 \leq 3x + 2y$